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CONTENTS

Transmittal	(ii)
The Uranium Market	1.0
Topical Essay	2.0
Raw Materials	3.0
Statistical Data	
• Exchange and Transaction Values	4.0
• Transactions	4.4
• Government Statistics	4.5
Market Opportunities	
• Inquiries to Borrow	5.0
• Available for Loan	5.0
• Inquiries to Purchase	5.1
• Available for Sale	5.2

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TRANSMITTAL

Readers' attention is directed to a revision in the formula for determining Transaction Value, which is described in this month's *Pricing* section.

We look forward to greeting Subscribers at the AIF Annual Conference in San Francisco, November 11-14. We will have a hospitality suite in rooms 833-4 of Hotel St. Francis, and this year's Breakfast for Subscribers and their guests will be held on Tuesday, November 13, in the hotel's California Room, West.

Nuexco broker, Jim Vaughan, expanded Nuexco's worldwide presence by planting the Nuexco flag atop Alaska's Mount McKinley, North America's highest mountain. The expedition required four weeks. The "hospitality suite" opened by Jim after arrival was closed as supplies dwindled and attendance proved disappointing.

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Public and Government Policy

US President Carter's Commission on the Accident at Three Mile Island reported its findings and recommendations on October 30. The Commission reported that its investigation did not "require the conclusion that nuclear power is inherently too dangerous to permit it to continue and expand as a form of power generation."

The Commission was given a broad mandate to make recommendations for preventing accidents in the future, and its report included 44 specific recommendations. One is to replace the Nuclear Regulatory Commission with an executive agency headed by one person, in order to improve the efficiency of decision making, especially in times of crisis. The panel apparently considered several moratorium proposals, but none carried a majority vote. Thus it did not advise any delay or halt to nuclear power construction or operation while its safety recommendations are being considered and implemented. The Commission avoided any sweeping proposals about whether national policy should encourage or discourage commercial nuclear power, commenting that the ultimate assessment of risks vs. benefits should be left to the political process. It also did not discuss peripheral issues, such as radioactive waste disposal.

On another front, a bill has been introduced in the British Parliament apparently aimed at shielding British subjects from some provisions of US antitrust law. The bill would refuse US investigators access to British records that could help them in antitrust cases against British companies, and it would enable British subjects and companies to bring actions in British courts to recover the punitive portion (i.e. two-thirds) of any treble damage awards under the Sherman Antitrust Act.

The law would apply to all nations that bring such actions against parties in the UK, but is aimed at the US specifically. The bill was apparently prompted in part by US antitrust litigation in the uranium industry.

General: Supply and Demand Balance

Nuexco has carried out an analysis of the world supply/demand balance for natural uranium. The results of the analysis are summarized in Table 1.

Table 1
NATURAL URANIUM SUPPLY-DEMAND BALANCE: WOCA[a]
(x 1,000,000 lb U_3O_8 equivalent)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
SUPPLY[b]												
Operating Production Ctrs.	94.5	106.8	103.7	104.3	101.5	102.0	102.1	100.3	102.2	101.1	98.8	96.2
plus												
Facilities under construction	–	3.8	10.5	12.9	22.2	27.5	29.6	32.1	32.8	33.5	33.8	34.2
equals												
Firm Supply	94.5	110.6	114.2	117.2	123.7	129.5	131.7	132.4	135.0	134.6	132.6	130.4
DEMAND												
less												
Apparent Consumption[c]	76.2	77.7	97.3	102.4	120.0	112.1	121.7	122.7	127.4	128.8	132.0	127.7
equals												
Inventory Purchases	18.3	32.9	16.9	14.8	3.7	17.4	10.0	9.7	7.6	5.8	0.6	2.7
INVENTORY												
plus												
Beginning Inventory	160	178	211	228	243	247	264	274	284	291	297	298
equals												
Ending Inventory	178	211	228	243	247	264	274	284	291	297	298	300
Beginning Inventory ÷ Annual Consumption =												
Relative Inventory Level (yrs.)	2.1	2.3	2.2	2.2	2.0	2.2	2.2	2.2	2.2	2.3	2.3	2.3

a. World Outside Communist Areas
b. Ref. Nuexco Report No. 134
c. Ref. Nuexco Report No. 132

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Before interpreting the results, however, some discussion of the methodology and fundamental assumptions is in order.

1. The critical assumption is that uranium production centers in operation or under construction as of this writing (defined as "firm supply" for purposes of this analysis) will be able to sell their projected U_3O_8 output. Much of the material defined as firm supply is already committed by contract for future deliveries. In some cases, the production facility's future output is committed to a single buyer, either through national ownership or through direct utility participation in uranium supply. It is assumed that the remainder of total projected firm supply can be sold, even if only for inventory accumulation in a time of apparent excess supply.

2. Planned production centers—those with production plans and identified ore reserves, but which have not yet begun construction—are not considered in this analysis under the definition of firm supply.

3. Nuexco production estimates for centers operating or under construction were added, and the results are tabulated in Table 1, designated "Firm Supply." The methodology for Nuexco estimates of U_3O_8 production was discussed in detail in Reports No. 133 and 134.

4. Another fundamental assumption is that annual demand would be greater than or equal to annual consumption. This has been borne out in uranium industry practice. To the extent that annual demand exceeds annual consumption, inventory is accumulated.

5. Annual consumption is determined using the Nuexco estimate of Apparent Future Consumption, a concept introduced in Report No. 128 and updated in Report No. 132. It is important to note that Apparent Future Consumption takes no account of reactors not yet ordered. Consequently, Apparent Future Consumption will understate demand by the amount attributable to orders yet to be placed, as well as by inventory purchases.

6. In order to facilitate understanding of the analysis, the methodology used for Nuexco's estimate of Apparent Future Consumption is summarized below:

a. Estimates of Apparent Future Consumption should be regarded as a comparatively hard component of total demand, and relatively insensitive to uranium prices. Market demand for the assumed pattern of capacity additions can be higher, but is not likely to be lower.

b. Demand can exceed Apparent Future Consumption because of accelerated reactor construction schedules or inventory purchases by utilities.

c. Reactor loading is calculated, for each reactor, based on its individual core characteristics. It is assumed that: 1) U_3O_8 deliveries for first cores predate commercial operation by two years; 2) first reload occurs 12 months after commercial operating date, and annually thereafter; 3) U_3O_8 delivery for each reload predates reload by 18 months.

d. Actual commercial operating dates can differ widely from published dates. Nuexco uses the best information available, much of it from unpublished sources.

e. These estimates make no provision for orders not yet placed. Only the consumption associated with reactors operating, under construction or on order are included.

f. Reactors fueled by the USSR are excluded.

7. Inventory refers to natural uranium inventory (U_3O_8 and UF_6) owned by utilities, reactor manufacturers, fuel fabricators and national uranium procurement organizations. The inventory amounts do not include strategic stockpiles such as that owned by US DOE. Difficulties in accounting precisely for the variety of possible forms, locations and ownership of uranium inventory necessarily result in some uncertainty in estimating the total world natural uranium inventory. The Nuexco computation of natural uranium inventory as of the beginning of 1979 is approximately 160 million pounds; however, the uncertainty factor of this estimate is ten to fifteen percent. More important is the fact that the primary conclusions of this analysis are not sensitive to beginning inventory variations of ten to fifteen percent from the estimated 160 million pounds U_3O_8 at the beginning of 1979.

Interpretations and Conclusions

1. In each year, firm supply exceeds apparent consumption, so supply and demand are balanced

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by additions to inventory. In actual practice, if supply exceeds demand over an extended period, the necessary balance will probably result from a combination of inventory purchases and reduced production. In this analysis, however, under the assumption that producers will be able to produce and sell all firm supply, the conclusion is that there will be excess production every year from now through 1990, and that excess production will add to inventory.

2. The world inventory of 160 million pounds U_3O_8 at the beginning of 1979 is equivalent to 2.1 years' supply at the current rate of consumption. By 1990, this analysis indicates that inventory will nearly double to 298 million pounds U_3O_8, but a corresponding rise in apparent consumption will have maintained approximately the same relationship between inventory and annual consumption. Thus, in 1990, beginning inventory will be equivalent to 2.3 years' supply at the 1990 rate of consumption. For each year considered in this analysis, the ratio of beginning inventory level to annual consumption is from 2.0 to 2.3.

3. An interesting observation is that an inventory level equivalent to two years' consumption appears to be a generally accepted level of comfort among utilities. While some utilities (e.g. some US utilities) favor a minimum inventory policy, and others (e.g. Japanese utilities) favor large inventories, two years is an oft-quoted target figure. Under the ground rules of this analysis, a world industry average of two years' forward inventory appears to be feasible, even if only production centers currently operating or under construction are considered.

4. If demand is to be sufficient to support production from production centers planned, but not yet under construction, it will most likely arise either from new reactor orders or from political or policy considerations. Inventory buying heavy enough to support this third group of production centers would create a significant increase in the ratio of inventory to consumption.

Australia

Australian uranium marketing efforts have increased during the past two months. The publicity surrounding Roxby Downs and other recent uranium developments in Australia has tended to obscure the fact that the government has granted marketing approval to only three projects: Western Mining's Yeelirrie, Ranger's Jabiru and Queensland Mines' Nabarlek, with the last two having been most visible in the marketplace—the result of being closer to production.

Queensland has completed mining the Nabarlek deposit, and now has all its ore graded and stockpiled, on the surface, adjacent to the mill site. The 200 ton per day mill is scheduled for completion by March 1980, with commercial operation scheduled for mid-year. With an average feed grade of almost 2.0 percent U_3O_8, Queensland will produce about 2.5 million pounds U_3O_8 annually during the period 1981-1988. Over 50 percent of the Nabarlek production is already committed to Japanese buyers and to repay borrowings from the Australian government, leaving less than 10 million pounds available for commitment to other buyers.

The Ranger situation is markedly different, both in size and complexity. The Jabiru deposits are estimated to contain over 220 million pounds U_3O_8, with an average grade of about 0.3 percent. Announced annual output is 6.6 million pounds U_3O_8. Mine and mill development are underway. Like Queensland, Ranger has already committed some tonnage to Japanese buyers and also has commitments to repay uranium borrowed from the government, but these quantities are modest, compared with the scheduled production rate and total Jabiru reserves.

The government's decision to seek buyers for its share of the Ranger project has resulted in a number of proposals from a broad cross-section of the international uranium community. Pending resolution of this situation, any marketing of the government's share of production is in abeyance.

The list of finalists includes organizations from the United States (Esso, Phillips Petroleum, Union Carbide, Utah International and Newmont), Canada (Denison), the UK (British Civil Uranium Procurement Organization, jointly with the German firm Urangesellschaft), France (Cogema and EDF jointly), Italy (AGIP) and Australia (Mary Kathleen, Brambles Industries, Peko-Wallsend together with Japanese partners, CSR together with French and Korean interests, and Australian United Corporation, a merchant bank, on behalf of undisclosed principals).

Western Mining and its partners do not contemplate producing from Yeelirrie before 1985, as a result of their decision to evaluate different recovery

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processes in a pilot mill. Their reserves are estimated at over 100 million pounds U_3O_8 at a grade of 0.15 percent. Announced annual output is 5.5 million pounds U_3O_8. Based on announced arrangements among the owners, only 40 percent of Yeelirrie production remains to be marketed by Yeelirrie Development Company, a subsidiary of Western Mining Corporation, with the remainder handled by Urangesellschaft (10 percent) and Esso/Exxon (50 percent, including 35 percent to be purchased from Yeelirrie Development Co.).

Although new sales from all three projects have been rumored, such "sales" amount in reality only to agreements in principle between the parties, for it can be reliably reported that, to date, the government has yet to give final and formal approval to any new contracts.

Canada

At the Seminar on Markets for Canadian Uranium held in Calgary, Alberta, on October 25, it was observed that since 1975, over $300 million have been spent on exploration in Saskatchewan, and that exploration expenditures in 1979 would exceed $80 million. It was further observed that the Amok/SMDC Cluff Lake operation is still expected to reach full output capacity by 1982. Construction of the mill at the SMDC/Uranerz/Eldor Resources Key Lake operation is expected to begin soon. The current schedule indicates completion of the facility in 1983 and full output capacity the following year.

The public statement by the new federal Conservative government regarding the liquidation of Canada's stockpile was viewed with some alarm at the Seminar, given the recognition of an already difficult near-term export market for western Canada's uranium industry. The consensus was that the government would behave responsibly when fully apprised of existing market conditions.

Central Africa

It has been reported that a consortium headed by Japan's Overseas Uranium Resources Development Company (OURD) has discovered a rich uranium deposit in an exploration concession in the Republic of Niger. The deposit is located in the Asphalt district in the southern part of the Sahara, and is said to contain at least 30,000 metric tons of uranium (78,000,000 pounds U_3O_8) at an average depth of 400 meters. OURD commented that it is too early to determine whether the deposit is economically recoverable at today's prices.

Europe

Although the future of nuclear power in Sweden will be determined by a referendum in the spring of 1980, most of the political parties in Sweden have taken a stand on nuclear power. The five parties appear to be inclined as follows:

Conservative (73 votes in parliament): pro-nuclear
Central (64 votes): anti-nuclear
Communist (20 votes): anti-nuclear
Liberal (38 votes): supports limited use of nuclear power
Social Democratic (154 votes): previously a pro-nuclear group. TMI apparently caused a party split, with the labor union faction still pro-nuclear. The party will take a stand before the referendum.

While it is too early to predict the results of the referendum, the overall pro-nuclear stand of the new government is a positive sign.

During the first half of 1979, electricity production from nuclear power in the countries of the European Economic Community increased by 14 percent, compared to the same period in 1978. The largest increases were in France, 44 percent; FRG, 14 percent; and Belgium, 10 percent.

Switzerland's fourth nuclear power unit, the 906 MWe Goesgen reactor, completed its six-week power demonstration this month, and was formally transferred to the owner.

Southern Africa

Third quarter uranium production for South Africa's gold/uranium producers is as follows:

	Pounds U_3O_8
Blyvooruitzicht	151,000
Buffelsfontein	337,000
ERGO	145,000
Harmony	295,000
Hartebeestfontein	226,000
JMS	345,000
Randfontein	272,000
Stilfontein	168,000
Vaal Reefs	837,000
West Driefontein	165,000
Western Deep Levels	105,000
West Rand Consolidated	203,000
Total	3,251,000

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Total production for the third quarter is 12.1 percent higher than for the previous quarter. The increase is due largely to two factors— the buildup of production from the new south plant of the Vaal Reefs complex and the early startup of the new Chemwes plant at Stilfontein. Construction of the Stilfontein facility commenced in early 1978 and was originally scheduled for completion in 1980. It is designed to process 270,000 metric tons per month of uranium-bearing tailings from old gold mining operations. This quarter 545,000 metric tons were processed, for a yield of 0.14 kg U_3O_8 per metric ton treated. By the end of the quarter, Stilfontein was operating at 80 percent of designed capacity.

The president of the South African Electricity Supply Commission (ESCOM) recently commented that South Africa expects to have 15,000 MWe of nuclear power operating by the year 2000. Electricity consumption in South Africa has been growing at an annual rate of nine percent. ESCOM's first units at the Koeberg site (two 920 MWe units supplied by Framatome) are still on schedule and are expected to be completed in 1982 and 1983, respectively.

United States

The original prohibition on the use of foreign-source uranium in US reactors associated with the Private Ownership Act of 1964 is now being phased out to the point where it is no longer of commercial significance. However, with the current slow uranium market and reduced apparent demand, the question of a new embargo on uranium of non-US origin has been raised frequently in recent months. While US producers would generally be expected to favor the protection such an embargo might offer, most industry observers have concluded that a US import embargo is most unlikely. The reasons usually cited are as follows:

1. *Political problems.* Several important US uranium producers and potential producers are also important oil companies (e.g. Exxon, Kerr-McGee, Getty, Sohio, Chevron, ARCO, Gulf, Conoco, Mobil). An import embargo which would help maintain or increase US uranium prices might be viewed as an aid to these oil companies. At present, most US politicians would rather their constituents believe they are making oil companies the "victims" of their efforts, as opposed to beneficiaries. This attitude seems to prevail regardless how irrational the results produced by such an approach might be.
2. *Lack of political clout.* About three-fourths of current uranium production in the US comes from two states, New Mexico and Wyoming. The combined population of those states is less than one percent of the total US population. Therefore, at the federal level, the political clout of the uranium-producing states is low. Further, uranium is a small business when viewed in the context of the total US economy. US production for 1979 is estimated to total about 38 million pounds U_3O_8. Even if all of this production were sold at today's Exchange Value, the annual industry volume would be only $1.6 billion. The oil industry, by comparison, is well over $100 billion. In other words, the uranium industry is not large enough in the US to be politically significant to the population as a whole.
3. *Small balance of payments effect.* US uranium consumption is expected to level off at 55 to 60 million pounds U_3O_8 per year in the mid-1980's. Present US production plus new production facilities under construction will yield about 45 million pounds U_3O_8 annually (see Report No. 133). Even if no additional US production comes on line in this period, net imports are unlikely to exceed 15 million pounds per year, or 25 percent of total US consumption. At today's prices, the net balance of payments deficit would not be expected to exceed about $600 million, or about one percent of the current US balance of payments deficit for petroleum.
4. *Embargoes are politically sensitive.* Trade restrictions are always deeply resented by trading partners, and are thus hotly debated, very sensitive matters of international relations. A US uranium import embargo would be especially resented by the biggest and nearest trading partner of the US, namely, Canada. Since the US is becoming increasingly dependent on Canada for supplies of oil and gas, it is unlikely that a selective import embargo on uranium fuel would be considered.
5. *No analogy to earlier embargo.* The earlier US import embargo was designed to assist an already established US uranium industry in making the transition from a government-dominated military procurement market to a fledgling commercial market. No analogy to that situation currently exists.

In summary, the US uranium industry is relatively small; providing import embargo protection appears to be too politically unrewarding to make it a likely

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prospect.

Coincident with industry concern about a US import embargo, there appears to be some concern among industry participants that the US may, at some time in the future, place an embargo on the export of uranium of US origin. Two conditions, in particular, appear to prompt that concern. First is the belief that exporting would be viewed unfavorably if the US has to import uranium to meet its domestic requirements. Second is the general uncertainty caused by US non-proliferation policies. There are several reasons, however, why it is unlikely that an export embargo will be implemented.

1. *US non-proliferation objectives.* US non-proliferation policy was founded on the assumption that granting or withholding of nuclear fuel could induce conformance of overseas governments with US objectives. On the contrary, however, the result of recent unilateral US policy action has been to increase the interest of non-US users in geographical diversification of supply. An embargo of US-origin U_3O_8 could only erode US influence further.

2. *Free trade favored.* US government policies generally favor free trade, and international negotiations usually aim to reduce trade barriers. An export embargo would be inconsistent with those aims. If the US becomes dependent on overseas uranium for part of its requirements, reliability of supply will become more important. Restricting US exports while simultaneously encouraging exports by others would be contradictory.

3. *US security of supply.* An export embargo would not appear necessary from a national security-of-supply standpoint. According to US DOE, US utilities currently hold inventories of more than twice annual US consumption. In addition, the US government's strategic stockpile represents considerably more than one year's consumption of U_3O_8. Therefore, any risk to US security of supply implicit in free trade in uranium would be mitigated by these large stockpiles, since any boycott of the US by uranium-producing nations would not disrupt US electricity production.

4. *US not a big exporter.* Table 2 sets forth the Nuexco estimate of current US export and import commitments for the period 1979-1990. In the years 1979 and 1980, exports and imports are approximately balanced. Thereafter, annual US export commitments are less than ten percent of annual US firm supply, as defined in the *General* section of this Report. While it is likely that additional export commitments will be made, it is not likely that the total will be large enough to be of true political or economic significance in the US. Consequently, there will be little political driving force to enact an export embargo on uranium.

Pricing

The **Exchange Value** remained at $42.20/lb. U_3O_8 this month. The spot and near-term markets remain quiet, as most sellers continue to resist price cutting to effect sales. There are a few buyers in the near-term market and these have, for the most part, been

Table 2
US EXPORT-IMPORT BALANCE[a]
(x 1,000,000 lb U_3O_8 equivalent)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
IMPORTS												
Annual	6.3	4.4	6.4	6.9	5.0	4.7	2.1	3.2	4.5	4.5	4.5	4.5
Cumulative	6.3	10.7	17.10	24.0	29.0	33.7	35.8	39.0	43.5	48.0	52.5	57.0
EXPORTS												
Annual	7.3	5.1	3.4	2.6	2.7	2.7	2.2	1.6	1.5	1.5	1.1	1.0
Cumulative	7.3	12.4	15.8	18.4	21.1	23.8	26.0	27.6	29.1	30.6	31.7	32.7
NET IMPORTS (EXPORTS)												
Annual	(1.0)	(0.7)	3.0	4.3	2.3	2.0	(0.1)	1.6	3.0	3.0	3.4	3.5
Cumulative	(1.0)	(1.7)	1.3	5.6	7.9	9.9	9.8	11.4	14.4	17.4	20.8	24.3

a. Does not include contracts currently under litigation.

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willing to buy only at a "discount from market."

The apparent activity is in the intermediate and long-term markets. The central point of current negotiations for this intermediate and long-term supply remains the search for pricing terms which meet the differing objectives of buyers and sellers. The two-tier floor/market mechanism which predominated in 1976-77 has undergone substantial metamorphosis, as the market has shifted away from seller dominance. The main changes include:

Discounts from market price. The rationale articulated by buyers, which is increasingly acceptable to sellers, is that there is little or no incentive to contract forward if the buyer must pay full market price. The utility argues that if it must pay full market price, it might just as well wait until its needs are close at hand. The counter-argument that security of supply and timely development of production facilities are the primary reasons for forward contracting, carries less weight in today's market where demand is slipping, current and perceived supply appears adequate and prices have been soft.

Lower floor prices. Whereas previous floor prices tended to be at or close to the then-current market levels, there is now a distinct shift toward lower floor prices and reduced escalation factors. The primary impetus behind this change has been situations where formula floor prices now exceed perceived market levels—a condition which for some buyers is, at best, embarrassing. Thus, buyers are seeking arrangements that reduce or eliminate completely the possibility of paying more than market price while, with a few exceptions, sellers insist on some mechanism which would prevent their being compelled to produce and deliver below cost.

As reported in US DOE's most recent *Survey of United States Uranium Marketing Activity* (DOE/RA 0038) and amplified at DOE's Uranium Industry Seminar in Grand Junction (October 16-17, 1979) there are some market price related contracts which guarantee delivery, but do not have floor prices. These contracts were concluded before the current period of market weakness, and it remains to be seen whether such arrangements would be acceptable to producers today.

In this connection, it should be noted that the papers presented at Grand Junction contained a great deal of market-related data. Of particular interest were the increased amount of price information collected, analyzed and presented in the market Survey discussed in George Combs' paper, and the series of price projections presented in Gene Clark's paper. When compared with previous presentations, it is apparent that, year-by-year, DOE is collecting additional market and price data, and as a consequence is increasingly prepared to comment on the commercial trends shown by these data.

The **Transaction Value** was established by Nuexco nearly two years ago as an objective measure of near-term prices. It was designed with a relatively dynamic market in mind, and it was assumed that there would usually be a large enough volume of business to keep it reasonably up to date. However, it was recognized at the time that there would be some inertia in the Transaction Value by definition, and that changes in the Transaction Value would lag changes in the Exchange Value. As part of the original computational ground rules, a present worth analysis was included to take into account the time value of money.

Recently, however, it has become apparent that the original formula for determining the Transaction Value has shortcomings in certain market conditions. Today, instead of being dynamic in the near-term, the market has been very slow. Few new transactions qualify for inclusion in the Transaction Value calculation. To further complicate matters, the Exchange Value has been slipping and interest rates, due to rapid inflation, are at an all-time high. As a result, the Transaction Value as calculated by its original definition has developed into an anomaly. This is a characteristic shared by all objectively-determined formulas for determining price; market conditions may change such that the formula no longer presents a reasonable result.

Under the definition of Transaction Value, a minimum of ten transactions and two million pounds are required in the calculation. It has often been necessary lately to go back six months to satisfy these ground rules. Present-valuing over six months introduces significant distortion, especially with very high interest rates. Also, the present value calculation yields a somewhat erratic result over time, especially if one or two large transactions remain in the sample for several months. While these effects were foreseen when the Transaction Value definition was established, their magnitude was underestimated.

For these reasons, it has been decided that the

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present value calculation be deleted from the Transaction Value determination. Thus, the Transaction Value will continue to show characteristic inertia, and change in it will lag change in the Exchange Value. However, erratic oscillation in Transaction Value should be removed by the deletion of the present-worth factor. The Transaction Value will now simply be a weighted average defined as follows:

The Transaction Value is a weighted average price of recent transactions, and is based on prices paid for U_3O_8 in transactions closed within the previous three-month period and for which delivery was scheduled within one year of the transaction date. At least ten transactions totaling at least two million pounds U_3O_8 are included in each calculation, or the sample time is extended as necessary to include these minima. Foreign currencies are converted to US dollars as of the transaction date.

All previous Transaction Values have been recalculated on this new basis, and are tabulated on page 4.2 of this Report. In Figure A below, the Transaction Values determined by the new definition are compared to those determined by the original defintion, from January 1977 through September 1979. It is apparent that, while the market was active and interest rates modest during 1977 and the beginning of 1978, the two methods yielded comparable results. It was only after the market began slowing and interest rates began to rise rapidly that the problems with the former definition developed. It is hoped that with the revised definition, the Transaction Value will continue to provide a useful measure of price movements in the uranium market.

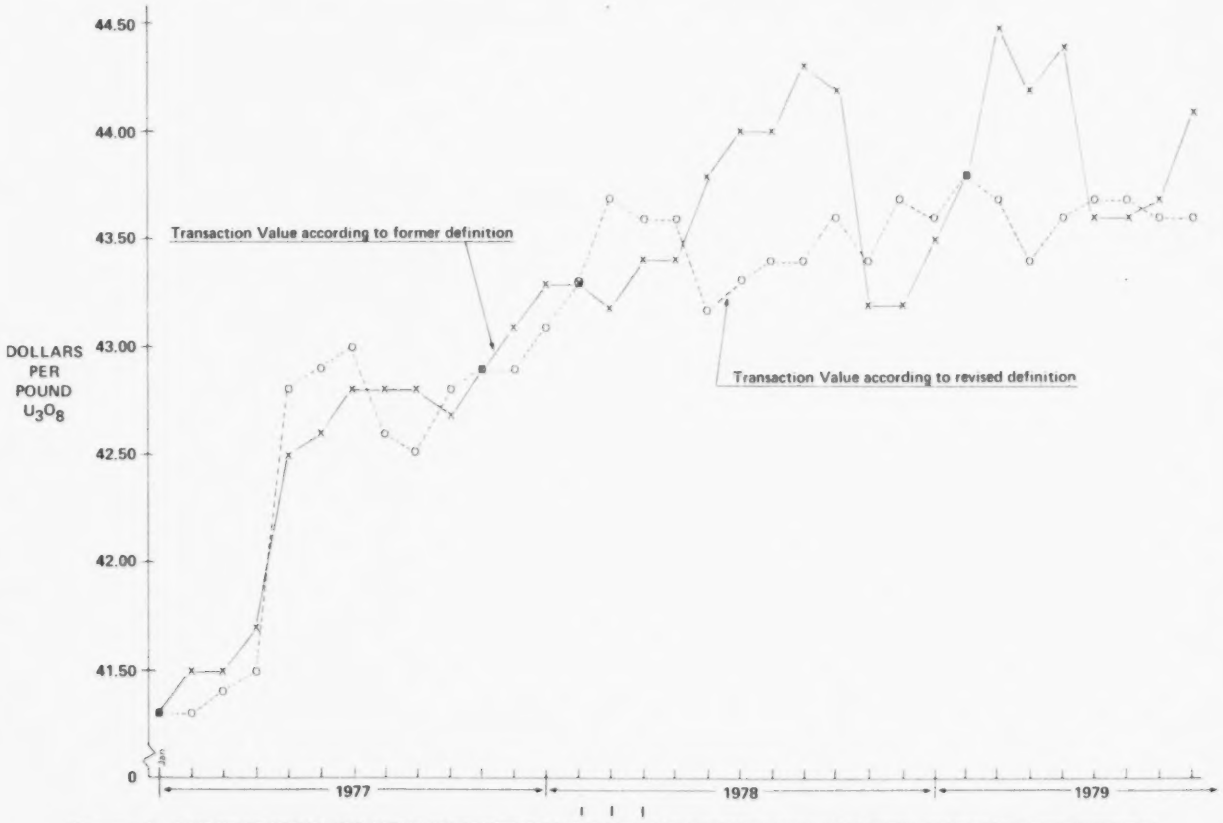

Figure A: COMPARISON OF NEW DEFINITION OF TRANSACTION VALUE WITH FORMER DEFINITION

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TOPICAL ESSAY

Marketing and Procurement: Tools of the Trade - II

Last month's *Topical Essay* discussed the meaning, use and implications of bids, offers and inquiries. Brokers represent an additional tool often used in the marketing and procurement of uranium.

Who Are the Brokers?

In the broadest sense, a broker is any person or entity whose business it is to bring buyer and seller together, or to act as a negotiator between parties, and is compensated for such involvement, usually on the basis of a contingent fee. The following general classifications of brokers exist in the uranium industry:

1. *Full-time brokers:* Sole or primary business is arranging uranium-related transactions and providing services which enhance such transactions. Nuexco is an obvious example.
2. *Part-time brokers:* Primary business is related to the nuclear power industry; engage in uranium brokerage as an additional line of business.
3. *Occasional brokers:* Primary line of business may or may not be uranium related; engage in uranium brokerage on an occasional basis when opportunities arise. Do not actively seek the business, as do the *full-time* and *part-time brokers.* The occasional broker is often closely associated with one or more particular buyers or sellers as a consequence of its primary business activities.
4. *Consultants:* Primary business is built around normal retainer and *per diem* consulting arrangements, but occasionally, because of specialized knowledge, have an opportunity to become involved in a uranium transaction on a contingent fee basis. Includes fuel cycle and geological consultants.
5. *Agents:* Normally engage in long-term, long-standing relationships representing sellers of uranium. These relationships may be exclusive, or limited geographically or by customer. Agency relationships are almost always established to facilitate international marketing, with the Japanese trading companies being the most obvious example.
6. *Traders:* Buy and sell uranium for their own risk and account, earning income on the difference between the purchase price and the sale price. Some nuclear reactor vendors and fuel fabricators have been traders in uranium.
7. *Representatives:* Serve to increase geographic or market coverage for the other identified types of brokers. They are usually small, independent companies or individuals.

Role of the Broker

The introduction of a broker into a uranium transaction does not alter the nature of the basic transaction. Brokers can and do make bids and offers on behalf of the parties, and initiate various types of inquiries. However, in many instances, brokers can provide additional services and market knowledge otherwise unavailable to buyers and sellers. They can also employ various marketing and procurement techniques which often cannot be utilized by buyers and seller themselves.

While many buyers and sellers are sophisticated in market matters, it is almost axiomatic that the broker, to be successful, must be more so. For example, a buyer may have an excellent feel for the current position of sellers, but his knowledge of other buyers with whom he is competing is unlikely to be complete. The same is true for sellers who know their customers well, but do not know their competitors equally well. A good broker, by virtue of being positioned in the center of the market, should have knowledge of both sides. In addition, it is the broker's business to know the special situations outside of or beyond the regular buyer/seller relationship. Thus, utilities wishing to purchase uranium will always canvas the known producers, but might not know of or seek out exploration companies, would-be producers considering entering the market, potential foreign sellers or other utilities or manufacturers which, for some reason, may have material for sale on a one-time basis. Likewise, producers would not normally consider other producers as likely purchasers of uranium.

Specialized marketing and procurement techniques represent the second broad area in which brokers can bring flexibility and a new dimension to the regular buyer/seller relationship. The most frequently used technique is the anonymous bid, offer or inquiry, wherein buyer or seller may wish to approach the market without revealing its identity. For example, to effect a scheduled delivery, a producer may elect to purchase uranium rather than produce it. Such a decision has obvious competitive

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TOPICAL ESSAY

implications, and the producer may wish to keep a purchase of this type confidential.

The services of a broker, together with a bank letter of credit, can provide a party with complete anonymity. Likewise, without revealing its identity, a buyer or seller can make a bid or offer incorporating new prices, terms, conditions or ideas, without a commitment to reveal its identity unless the bid or offer is accepted. Or, it might utilize the inquiry approach to ascertain whether such a new approach would be acceptable.

A variation on this approach available to brokers, but not to buyers and sellers themselves, is the simultaneous inquiry. In this, the broker prepares a proposal for simultaneous transmittal to buyer and seller. This is not done on a random basis, but is typically aimed at buyers and sellers whose individual requirements and production capabilities appear to be a suitable match. Obviously, this approach is feasible only when the buyer and seller have procurement and marketing philosophies which allow the construction of a proposal appealing to each. The broker must have thorough knowledge of potential clients in order to be able to make such a selection from numerous buyers and sellers.

The principal advantage of the simultaneous inquiry is that the broker, as a third party, initiates the contract, thus freeing both buyer and seller from the need to reveal identities and expose negotiating postures. This allows buyer and seller to retain maximum flexibility, since each can disclaim authorship of the proposal. Several variations of this approach are possible, i.e., buyer identified to seller, seller identified to buyer, etc.

Thus, a broker can add a dimension to the normal interface between buyer and seller. While neither a panacea nor a replacement for the procurement and marketing functions, a broker is an additional tool which most market participants have utilized at one time or another.

Compensation of Brokers

Like other business enterprises, brokers are paid for their work. Brokers are usually compensated for results, rather than effort, since they are generally paid on a contingency basis. The variables in broker compensation are source, basis and amount of payment.

With respect to source, the broker, in almost every instance, must look to either buyer or seller, lender or borrower, land-owner or developer; i.e., one of the parties to the transaction, or in some cases, both parties. The exception to this is when the broker takes the middle position, buying from one party and selling to another, earning its fee on the spread between purchase price and sale price.

Similarly, experience has shown that brokers tend to be paid by the party against whom the market is skewed. Thus, in a sellers' market (more buyers than sellers, more demand than supply, and rising prices), the buyer is more apt to pay. Conversely, in a buyers' market (more sellers than buyers, more supply than demand, and falling prices), the seller is more apt to pay. Agents associated with particular sellers are exceptions to this rule and are almost always paid by the sellers, regardless of market conditions.

In a balanced market, the determination of who pays the broker's fee is often the subject of considerable negotiation.

Regarding basis of payment, there appear to be the following options:

1. *Percentage Compensation:* Payment is a percentage of price. This approach is most apt to be utilizelized by agents who are associated with specific sellers.
2. *Flat Compensation:* Payment is unrelated to price and is an agreed-upon amount per pound U_3O_8 or, alternatively, a specific lump sum for closing a specific transaction.
3. *Risk Compensation:* Gained through taking the position, with its attendant risk, of a principal. The aim, of course, is to buy at one price and sell at a higher price. A trader usually receives its compensation in this manner, although a broker sometimes will if the purchase and sale are arranged on a back-to-back basis.

Knowing the nature and basis of the broker's financial interests enables the non-fee paying party to assess more accurately the broker's actions and advice during negotiations.

Information regarding the amount of compensation paid to brokers is generally hard to obtain. However, fees in uranium sales transactions appear to range from about 0.3 to 3.0 percent of transaction price, with agents usually on the higher end of the scale. Traders' compensation can, of course, be even higher if they buy and sell wisely, but along with the potential for greater rewards go greater risks.

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Northeastern Washington Uranium District

Uranium prospecting has been commonplace in northeastern Washington since the early 1950's. Discovery of the Midnight deposit on the Spokane Indian Reservation in early 1954 stimulated prospecting throughout the entire eastern part of the state. However, reports of uranium discoveries were primarily limited to the northeastern sector where prospecting, exploration, mine development and milling have continued, in one form or another. To date, at least 99 uranium occurrences have been discovered in six separate areas within the district (see map); another 15 to 20 discoveries have been reported in other areas of the state.

The discovery of the Midnight ore deposit in 1954, and of the Sherwood & Daybreak deposits in 1955, was the incentive for prospectors to converge on the new district. Mineral occurrences were subsequently discovered in a variety of geologic environments from Precambrian to Tertiary Age. The areas considered to be generally favorable for uranium exploration included Tertiary basins where poorly-sorted arkosic and tuffaceous sandstones and conglomerates occur, intercalated with volcanic flows and volcaniclastic rocks; in intrusives and associated metamorphic rocks with related faulting, fracturing and shearing within older rocks; and in areas where certain metals occur in close association (most commonly, molybdenum, tungsten and copper). Extensive exploration was carried out during the following few years, but discoveries were primarily limited to occurrences which are not economically recoverable. Interest in the area began to wane and by 1959, only the three deposits listed above had been discovered. The number of prospectors in the area decreased to less than a dozen.

Project development at that time was primarily limited to mining and milling of the Midnight Mine by the newly-formed Dawn Mining Company (51 percent controlled by Newmont Mining Corporation, 49 percent by Midnight Mines, Inc.) Dawn began open-pit mining in 1956 and production of yellowcake at a newly-constructed, 440 ton per day mill at Ford, Washington, in 1957. The mine and mill operated continuously until April 1965. Mining and milling resumed at full production levels in 1970, and are still in progress today. Production from the Midnight Mine has totaled about 10.6 million pounds U_3O_8, during the 18 years it has been in operation. The average grade of the ore exceeded 0.21 percent U_3O_8 during the first 15 years; in the past three years, the grade has decreased to ±0.14 percent U_3O_8.

The Sherwood deposit was discovered by the Northwest Uranium Company in 1955. The Silver Buckle Mining Company mined 306,000 pounds U_3O_8 at an average ore grade of 0.17 percent during the period 1958-1963. Western Nuclear, Inc. (WNI), gained control of the property and adjacent acreage in 1966. Exploration resumed immediately, and by 1968, WNI had drilled out reserves which were eventually estimated to exceed 14 million pounds U_3O_8, at an average ore grade of 0.088 percent. WNI began open-pit mining on the Sherwood deposit in 1977, and completed construction of a 2000 ton per day mill in April 1978. In less than two years of operation, about 800,000 pounds U_3O_8 have been recovered by WNI.

Operations at the Daybreak Mine were initiated in late 1955. The first ore mined by Daybreak Mining Company was shipped to the Vitro mill in Salt Lake City, Utah. Later, the ore from Daybreak and six small deposits in the immediate area was processed at the Dawn mill. Total production from the area is about 100,000 pounds. Unmined reserves at the Daybreak pit and the Bear Creek shaft are estimated at about 40,000 pounds U_3O_8. WNI controlled the Daybreak property from the mid-1960's through 1976. It is now controlled by Energy Fuels Exploration Company of Denver, Colorado.

Exploration activity throughout the district was at a low level during the period 1960-1974. However, following the discovery of reserves of about 500,000 pounds U_3O_8 by WNI on the northern slope of Spokane Mountain (about a mile northeast of the Midnight Mine) in 1975, exploration activity increased significantly. By mid-1977, 25 to 30 companies were exploring, and another 20 to 25 were prospecting and/or attempting to secure land, primarily within the vicinity of Spokane Mountain. Additional interest in the district has since diminished considerably as a result of only limited exploration successes. Eight to twelve companies are presently exploring throughout the state. At this time, activity is perhaps at its highest level on the reservation and in northern and northeastern Ferry County.

Uranium mineralization in the Northeastern Washington district occurs in crystalline rocks. The Front Range of Colorado is the only other area in the

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US where economically recoverable uranium deposits are known to occur in a crystalline environment; the major deposits in France, Australia and Canada are in a similar environment. Generally, such deposits have greater tonnage and are higher in U_3O_8 content. It is this common geological setting that has attracted prospectors to the Washington district.

The district, in general, and the Spokane Mountain area, in particular, consist of a Cretaceous granite of batholithic proportions, intruded into Precambrian metasediments. The intrusion created shearing, fracturing and metamorphism of the older sedimentary rocks throughout the region. Eocene Tertiary dikes intruded all of the older rock, creating further alteration. Miocene Tertiary volcanics which once covered the region are now represented as erosional remnants overlying the granite and older rock at higher elevations. The Columbia River basalt covers much of the area at the lower elevations, usually below 2500 feet. Uranium mineralization has been discovered in all of the major rock units, from Precambrian through Tertiary Age. The three important ore deposits in the Spokane Mountain area occur in this geologic environment.

The Midnight deposit was the first to be discovered. Mineralization is concentrated in graphite and muscovite schists of the Precambrian Togo formation adjacent to the contact with the Midnight pluton—a quartz monzonite intrusion often referred to as the Loon Lake granite. Stringers of mineralization extend downward into the monzonite.

Ore deposits have been discovered at depths of from 15 to more than 300 feet. Individual deposits vary in thickness from one or two feet to over 40 feet; ore widths vary to over 200 feet, and lengths may exceed 700 feet. Uranium minerals present in the deeper, unoxidized zones are coffinite and pitchblende, while uranophane and autunite are the main ore minerals in the oxidized zones.

The uranium in the Togo Formation probably originated due to hydrothermal fluids moving through the uranium-rich quartz monzonite and into the metasediments, where the uranium was deposited as a precipitate. In turn, uranium in the metasediments was partially remobilized and redeposited in altered metasediments and Eocene dikes. The theory of remobilized uranium is supported by the fact that the ground water in the mine area is uranium-rich; the formation of secondary ore minerals at the water table has also been noted.

The Sherwood uranium deposit is located four miles south of the Midnight deposit on the same structural trend. The Midnight pluton (quartz monzonite) is the oldest rock in the vicinity of the deposit. Monzonite outcrops near the site of the original ore discovery, but is otherwise covered by the Tertiary Sanpoil volcanic sequence consisting of 180-600 feet of conglomerates, pyroclastic sediments, shales, tuffaceous sand units and andesite flows. The Sanpoil, in turn, is capped by 5-50 feet of the Columbia River basalt of Miocene Age. Five to ten feet of glacial debris cover much of the mine's surface area. Uranium mineralization occurs only in the lower 200 foot-thick conglomeratic member of the Sanpoil.

The ore deposit has been displaced approximately 200 feet by a high-angle normal fault which trends almost north-south. The down-dropped block is to the west, and the ore-bearing conglomerate is adjacent to quartz monzonite in the eastern fault block. The thickness of the ore zone on the western side of the fault averages 60 feet, and the host conglomerate varies from about 80 to 200 feet overall. On the eastern side of the fault, the thickness of the ore zone averages 20 feet in a conglomerate that is only 60 feet thick—the reduced thickness is considered to be due to post-faulting erosion.

The eastern portion of the orebody is almost completely oxidized. The main ore mineral has been tentatively identified as meta-autunite. The ore zone shows disequilibrium of radiometric values and chemical values, probably due to oxidation caused by a fluctuating ground water table. Uraninite and coffinite are the main ore minerals associated with the unoxidized portion of the western orebody, and disequilibrium of the ore is not known to be a problem. Nevertheless, an ore-control system has been devised to automatically compensate for any irregularities which might be encountered during exploration and mining.

Uranium mineralization occurs as a coating on sand grains, pebbles and boulders of the conglomerate. The origin of the minerals is unknown. However, with the similarity of the occurrences to the mineralization of the Midnight deposit, hydrothermal emplacement is a possibility. Another source of mineralization might have been erosion of uranium-

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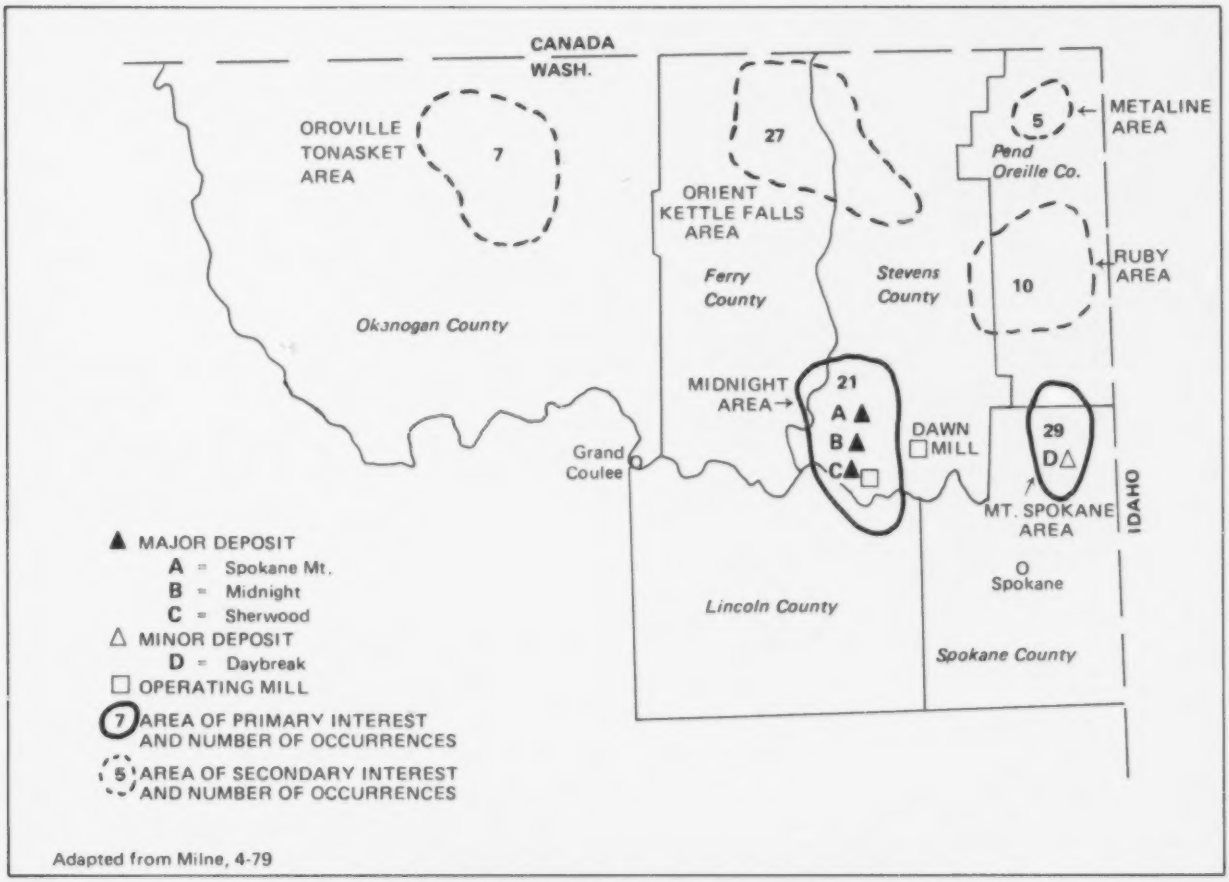

Adapted from Milne, 4-79

MAP OF NORTHEAST WASHINGTON URANIUM DISTRICT – SIX-COUNTY AREA SHOWING URANIUM AREAS OF PRIMARY AND SECONDARY INTEREST

bearing rocks from a highland area such as the Midnight area, with subsequent deposition of the uranium along faults and in the coarse sediments filling paleochannels in the quartz monzonite.

The Spokane Mountain uranium deposit was discovered by geological, geophysical and geochemical methods. It is located about one mile northeast of the Midnight area, on the same structural trend as both the Midnight and Sherwood deposits. Uranium mineralization occurs in Togo metasediments which have been folded, sheared intensely, fractured and faulted by the later intrusion of the quartz monzonite. Mineralization is associated with chloritic schist and graphitic phyllite in a deeply-weathered segment of the Togo Formation overlying the irregular surface of the monzonite. Drilling indicates that the orebody has been offset by several high-angle faults which more or less parallel the main structural trend.

The principal ore minerals in the altered segment of the Togo are meta-autunite and uranophane, both oxidized minerals. Pitchblende occurs as a reduced mineral and is probably the most important ore mineral present. Emplacement of the mineralization may have occurred under circumstances similar to the Midnight deposits. Even so, remobilization of uranium minerals could be more important to this particular deposit due to the intense weathering of

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the host rock, and to the association of the intruded Tertiary dikes which may, in turn, have been an additional source of mineralization.

Uranium activities in the Mt. Spokane area (northeastern Spokane Country) have had little economic impact on the district, but the nature of the uranium occurrence is important to future exploration. The Daybreak deposit is the largest of at least 29 discoveries made in the area. Mineralization at the Daybreak mine occurs along a major shear zone in Tertiary alaskite, the predominant host rock in the Mt. Spokane Area. Pegmatite dikes are common to the area and have contributed to the shearing, fracturing, faulting and alteration of the alaskite.

The only uranium mineral present is metaautunite. Unoxidized minerals have not been noted in the area. Thus, the source of uranium probably was the uranium-rich alaskite. The uranium was remobilized during a period of intense rock alteration and precipitated out of the ground water in the favorable structural and altered environment.

It appears that additional "easy to find" ore deposits (Midnight, Sherwood and Daybreak) may not exist except, possibly, at greater depths. If so, a more sophisticated approach to exploration will be required to locate ore deposits. WNI has already proved this with the discovery of the Spokane Mountain deposit. Through the application of detailed geological interpretation, followed by at least five separate geophysical studies and two geochemical programs, and eventually a comprehensive drilling program, the deposit was discovered at depths of 150 to 500 feet. Such an approach may be the key to successful exploration programs in the future. Project costs will be considerably higher, but so will the chances for success.

In summary, important uranium exploration successes in the Northeastern Washington district have been limited primarily to the area around the Midnight deposit located on the Spokane Indian Reservation in Stevens County. The favorable geologic environment of that particular area exists in much of the northeastern sector of the state. To date, at least 99 uranium occurrences have been reported in areas where uranium-rich plutons and adjacent metasediments, volcanic flows and intrusive dikes occur in association with prominent structural features. Regardless of the apparent potential that exists for the district, exploration activity is at the lowest level in almost three years.

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STATISTICAL DATA

EXCHANGE VALUE — $42.20/lb U_3O_8

Change from one month ago: $0.00/lb U_3O_8 (0.0%)

Change from one year ago: –$0.80/lb U_3O_8 (–1.9%)

DEFINITION

The Exchange Value is Nuexco's judgment of the price at which transactions for significant quantities of natural uranium concentrates could be concluded as of the last day of the month.

DERIVATION

Nuexco bases the Exchange Value upon:

A. Data from recently completed transactions.
B. Data from pending transactions.
C. Firm bids to buy and firm offers to sell.
D. Prices purchasers have expressed a willingness to pay, but for which Nuexco is not aware of firm bids to buy, and prices sellers have expressed a willingness to accept, but for which Nuexco is not aware of firm offers to sell.

COMMENTS

Nuexco does not consider the following in determining the Exchange Value:

A. The price of uranium delivered or to be delivered under old contracts.
B. The price of uranium delivered in connection with contract renegotiations or other than arm's length transactions.

TRANSACTION VALUE — [redacted]/lb U_3O_8

Date	U.S. $/lb U_3O_8	Millions of lbs	Number of Transactions	Number of Months
This Month	43.60	2.5	15	6
Last Month	43.60	2.5	15	5
One Year Ago	43.60	2.7	11	5

DEFINITION

The Transaction Value is a weighted average price of recent transactions, and is based on prices paid for U_3O_8 in transactions closed within the previous three-month period and for which delivery was scheduled within one year of the transaction date. At least ten transactions totaling at least two million pounds U_3O_8 are included in each calculation, or the sample time is extended as necessary to include these minima. Foreign currencies are converted to US dollars as of the transaction date.

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STATISTICAL DATA

Figure 1
HISTORICAL EXCHANGE VALUES

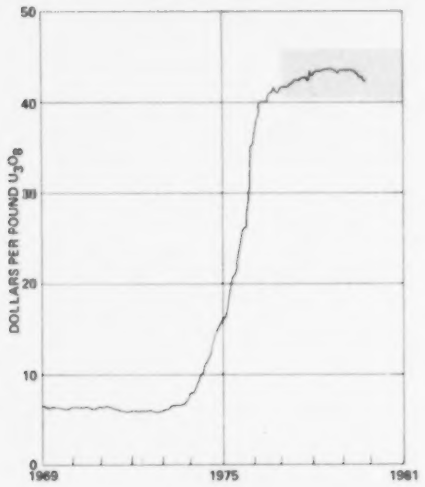


Figure 2
HISTORICAL TRANSACTION VALUES

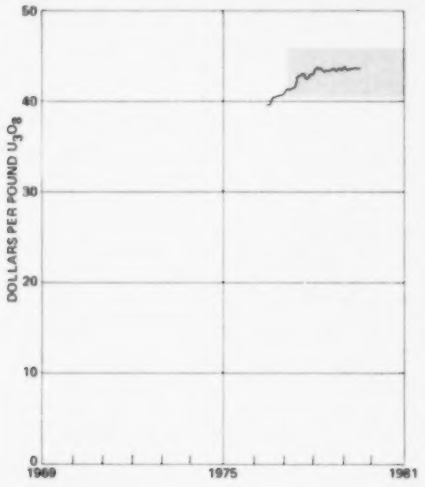
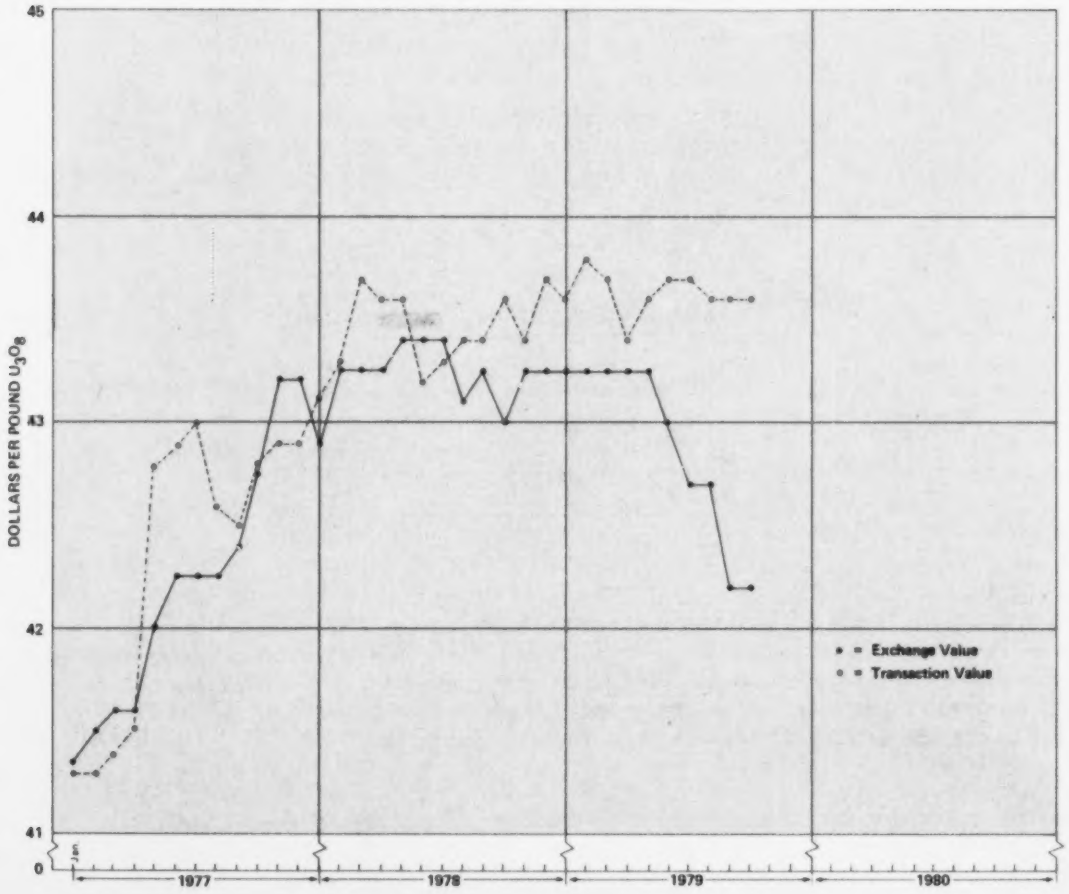


Figure 3
RECENT EXCHANGE AND TRANSACTION VALUES



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STATISTICAL DATA

EXCHANGE VALUE
US Dollars/lb U_3O_8

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1968	–	–	–	–	–	–	–	6.35	6.35	6.40	6.45	6.50
1969	–	6.35	6.10	6.10	6.25	6.25	6.20	6.20	6.15	6.15	6.15	6.20
1970	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.20	6.15	6.15	6.15	6.15
1971	6.20	6.20	6.20	6.20	6.15	6.05	6.00	5.95	5.95	5.95	5.95	5.95
1972	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95
1973	5.95	6.00	6.10	6.20	6.45	6.50	6.50	6.50	6.50	6.50	6.75	7.00
1974	7.70	7.90	8.00	9.00	9.50	10.50	11.50	12.00	12.50	14.00	14.75	15.00
1975	16.00	16.00	18.00	20.00	21.00	23.00	24.70	26.00	26.00	28.50	30.00	35.00
1976	35.20	37.00	39.25	40.00	40.00	40.00	40.00	40.40	41.00	41.00	41.50	41.00
1977	41.35	41.50	41.60	41.60	42.00	42.25	42.25	42.25	42.40	42.75	43.20	43.20
1978	42.90	43.25	43.25	43.25	43.40	43.40	43.40	43.10	43.25	43.00	43.25	43.25
1979	43.25	43.25	43.25	43.25	43.25	43.00	42.70	42.70	42.20	42.20		

TRANSACTION VALUE
US Dollars/lb U_3O_8

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	–	–	–	–	39.60	39.70	39.70	40.40	40.30	40.60	40.70	40.70
1977	41.30	41.30	41.40	41.50	42.80	42.90	43.00	42.60	42.50	42.80	42.90	42.90
1978	43.10	43.30	43.70	43.60	43.60	43.20	43.30	43.40	43.40	43.60	43.40	43.70
1979	43.60	43.80	43.70	43.40	43.60	43.70	43.70	43.60	43.60	43.60		

Note: See earlier Nuexco Reports for evolution of the definition of Exchange Value.

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STATISTICAL DATA

EXCHANGE VALUE EXPRESSED IN PRODUCER & CONSUMER CURRENCIES

Country	per lb U_3O_8 in Concentrates	per kg U_3O_8 in Concentrates	per kg U in Concentrates
US (dollar)	42.20	93.03	109.71
France (franc)	178.51	393.55	464.09
FRG (mark)	76.24	168.08	198.21
Japan (yen)	10,072	22,204	26,184
Switzerland (franc)	70.62	155.68	183.59
UK (pound)	20.48	45.15	53.24
Australia (dollar)	38.26	84.35	99.47
Canada (dollar)	49.88	109.96	129.67
Niger, Gabon (CFA)	8,926	19,677	23,204
South Africa (rand)	34.92	76.98	90.78

USE CHARGE

Loan Commencement Date	Annual Use Charge Rate %
Within next 6 months	7

USE CHARGE --- Nuexco's judgment of the annual interest rate which a borrower would have to pay to obtain a near-term uranium loan. It is based upon transaction data, the money-market prime rate and the relationship among uranium inventory, supply and demand.

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STATISTICAL DATA

CURRENT TRANSACTIONS*

Ref		Material & Approximate Quantity	Approx. Price as % of Current E.V.	Seller Group	Buyer Group	Remarks
951	79	Less than 50,000 lbs U_3O_8		US	US	
952	81-83	300,000 to 600,000 lbs U_3O_8	100%	US	Europe	
981	late 80's	1,000,000 to 2,000,000 lbs U_3O_8		Canada	Pacific Basin	
982	84-90	2,000,000 to 4,000,000 lbs U_3O_8		US	Pacific Basin	

* Transactions listed include not only those in which Nuexco was involved, but also all others of which Nuexco is aware.

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MARKET OPPORTUNITIES

Market Opportunities are *active* inquiries in the uranium market to buy, sell, borrow or lend. The data presented in this section are in no way intended to be indicative of the entire uranium market for the time period covered.

SUPPLY

URANIUM AVAILABLE FOR SALE

Delivery Year	Pounds U_3O_8 (1000's)	Nuexco Reference Number	Remarks
1979	100	1292	
	170	1314	
1980	1000	1103	
	300	1274	
	350	1284	
1981	120	1128	
	150	1122	
	300	1274	
	250	1286	
	1000	1103	
1982	150	1122	
	120	1128	
	250	1286	

URANIUM AVAILABLE FOR LOAN

Delivery Year	Return Year	Pounds U_3O_8 (1000's)	Nuexco Reference Number	Remarks
1979	1981	650	1175	UF_6
	1983	1000	1008	UF_6
	1983	1000	1196	
	1981	1000	1136	UF_6
	1982	1000	1239	UF_6

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MARKET OPPORTUNITIES

DEMAND

INQUIRIES TO PURCHASE URANIUM

Delivery Year	Pounds U_3O_8 (1000's)	Nuexco Reference Number	Remarks
1980	300	1146	
	325	1227	
	200	1207	
	700	1268	
	100	1300	
1981	250	1089	
	300	1146	
	500	1228	
	325	1227	
	200	1207	
1982	250	1089	
	300	1146	
	325	1227	
	200	1207	
	500	1228	

INQUIRIES TO BORROW URANIUM

Delivery Year	Return Year	Pounds U_3O_8 (1000's)	Nuexco Reference Number	Remarks
1979	1982	500	1121	Tentative
	1984	1000	1220	
	1983	1000	1240	Tentative
	1985	400	1287	

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EXECUTIVE SUMMARY & INDUSTRY OVERVIEW
NUEXCO REPORT NO. 135
Prepared Especially for Upper and Middle Management

US President Carter's Commission on the Accident at Three Mile Island reported its findings at the end of this month. The Commission made numerous specific recommendations for preventing accidents in the future and advised replacement of the Nuclear Regulatory Commission with an executive agency headed by one person. The Commission neither found nuclear power generation inherently dangerous enough to discontinue or halt the expansion thereof, nor did it recommend any sort of temporary moratorium while its findings are being reviewed.

The *General* section analyzes the world supply/demand balance of natural uranium.

An international consortium headed by a Japanese organization has discovered a rich uranium deposit in the Asphalt district of Niger, with estimated reserves of at least 78,000,000 pounds U_3O_8.

The virtual embargo imposed by the US on the importation of foreign uranium for use in US reactors (associated with the Private Ownership Act of 1964) is being phased out to the point where it is no longer of commercial significance. Although today's slow market and reduced apparent demand have raised the question of whether a new import embargo could be imposed, most industry observers conclude that this is highly unlikely.

This month's *Topical Essay* continues the series on uranium marketing and procurement with a discussion of brokers.

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10/31/79

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